

Weekly Report

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Research

Implementation

For the implementation, this week I have finished the whole backend as well as framework of the frontend. Currently there will not be any further development on the support system.

Rule Representation

Though we have the tour view as the main method for data exploration, for human analyst it will be much easier and clearer to extract rules from the views orthogonal to axis. So a scatterplot-matrix-like view can be provided as assistance for rule extraction. In these small scatterplots, the separating planes will be projected as well as depth relation between data instances and the separating plane. For those views in which the projection of the separating plane is orthogonal to axis, it may reflect a better performance for classification. What is more, interactions on these scatterplots will be connected to the original tour view to represent the selected area. This is just an idea in initial stage that needs further thinking.

View Adjustment

As mentioned before, the other basis of the projection plane is on the surface of meta-ball in an $m - 2$ space with constraint of $\sum_{i=2}^m w_i^2 = 1$. The mapping strategy is to take another variable \hat{w}_i to represent w_i^2 . I will implement in the next few days.

Machine Learning Narration

This idea is from Prof.Qu's discussion. Our system can provide a visual narration of the machine learning process that describes characteristics of the data distribution and reasons of the training result. It is intended to provide more interpretation for novice users to get insight from it.

Next Plans

- Propose a proper interaction strategy for uses to adjust the viewport;
- think about another issue of support vector influence to the separating plane.